

EXECUTIVE SUMMARY

PROJECT OBJECTIVES, PURPOSE, AND NEED

Chevron Products Company (Chevron) is seeking approval from the California State Lands Commission (CSLC) of a new 30-year lease through 2040 to continue operations at its El Segundo Marine Terminal (Marine Terminal) located near El Segundo, Los Angeles County, California. The Marine Terminal supports the adjacent Chevron El Segundo Refinery (Refinery), which manufactures fuels and lubricants.

The proposed Project has the following objectives:

1. Continue transfer operations at the crude oil and petroleum product marine terminal in El Segundo, California; and
2. Provide a means for importing crude oil and petroleum products and exporting petroleum products to and from the adjacent Refinery so it may continue its operations for at least the next 30 years.

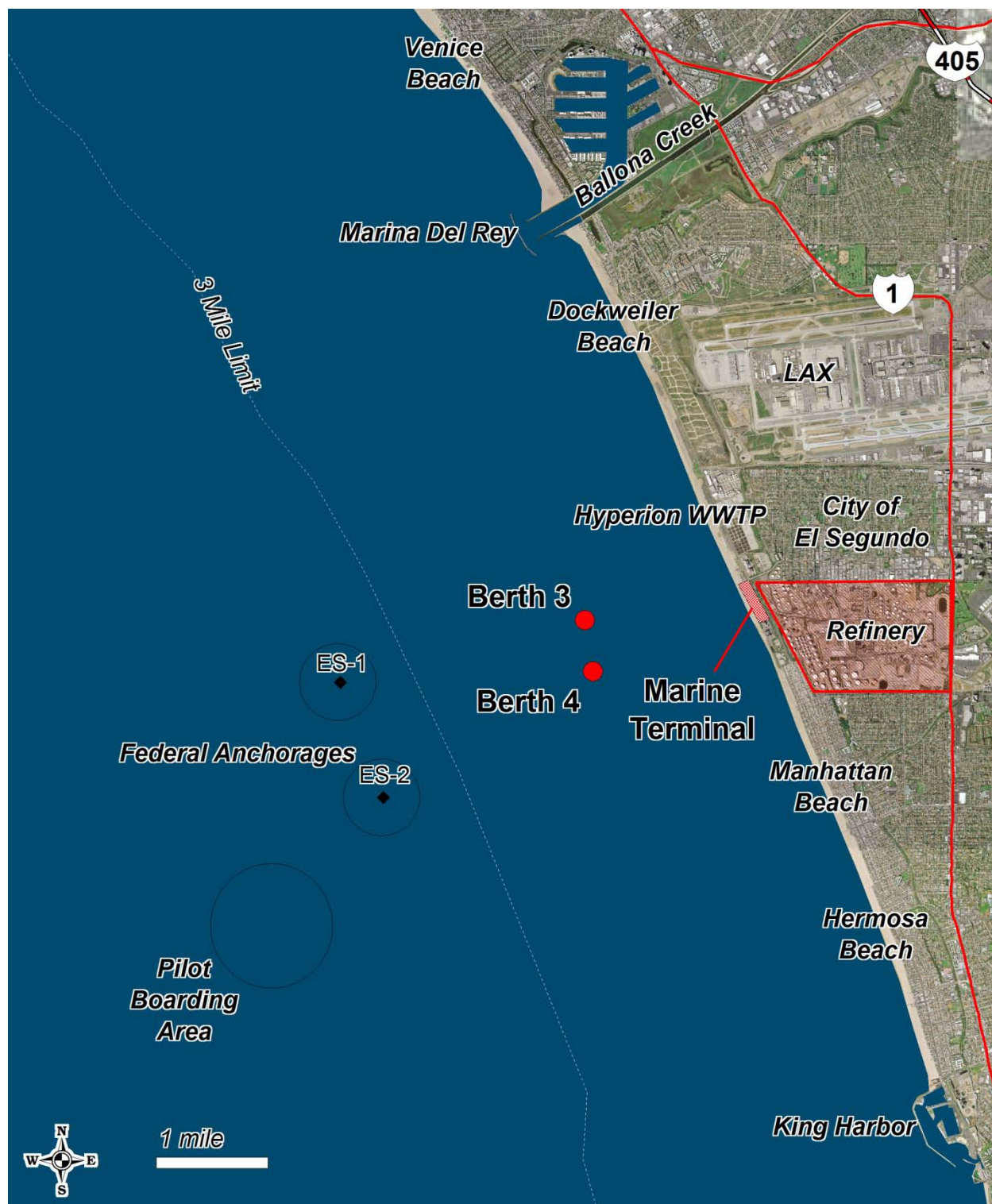
DESCRIPTION OF PROPOSED PROJECT

Chevron is seeking approval from the CSLC for a new 30-year lease for the offshore lands associated with the existing Marine Terminal and appurtenant facilities. Execution of this lease (proposed Project) would allow Chevron to continue operating the Marine Terminal, Refinery, and associated onshore storage facilities through 2040 (see Figure ES-1). Current imports include crude oil and other feedstocks; the Marine Terminal also exports refined petroleum products and components. Products and components include diesel fuel, gas oil, number 6 fuel oil, commercial jet fuel, fluidized catalytic cracker light cycle oil, crude oil residuum, motor gasoline, and motor gasoline components.

Onshore facilities are located in a nine-acre (3.6-hectare) area near El Segundo Beach on the shoreline side of Vista del Mar. These facilities include a control house, three berth pump stations, two substations, and connecting pipelines and valves. Specifically, these facilities will be used to discharge feedstocks into the Refinery's tanks or to load products or components from the Refinery tanks onto marine vessels.

Offshore Marine Terminal facilities are located within Santa Monica Bay and include two active berths (Berths 3 and 4) and their associated underwater pipelines that connect these berths to the onshore facilities. Each berth uses a seven-buoy mooring located in a circle around a vessel to hold it in a fixed position during transfers to and from the

**Figure ES-1
Proposed Project Area Map**



Source: Berths, Pilot Boarding Area, and Federal Anchorage locations based on NOAA Chart No. 18744

Refinery. Berth 3 is approximately 1.4 miles (2.3 kilometers [km]) offshore, and Berth 4 is approximately 1.5 miles (2.4 km) offshore. The size of vessels visiting Berth 3 ranges from 14,500 to 123,000 dead weight (metric) tons (DWT), while the size of vessels visiting Berth 4 ranges from 35,000 to 211,000 DWT. Some smaller vessels are loaded offshore of San Diego from very large crude carriers (VLCC), which carry up to 325,000 DWT. These smaller vessels then offload at the Marine Terminal because VLCC vessels are unable to berth at the Marine Terminal. This process is called lightering.

Some replacement of existing pipelines and other facilities may occur during the lease term for maintenance purposes. Pipeline replacement would involve construction of new pipelines, transport to the offshore site via barge, removal of existing pipeline segments, and installation of the new pipelines.

Future operations at the Marine Terminal may change over time based on the normal variability of refinery operations in a given year, although equipment configurations are expected to remain the same. The Applicant indicates in their Application that *“Based on recent trends, it is estimated that [Marine Terminal] throughput may increase from present levels by 1 percent per year during the next 5 to 10 years. Beyond the 10 year period, predicting throughput becomes more speculative. It is possible that a 1 percent per year increase in throughput could continue over the proposed 30-year lease period, although actual values may vary from year to year.”*

Therefore, based on the Application, this analysis has assumed a one percent annual increase in Marine Terminal throughput over the lease term. This correlates to an increase in vessel calls at the Marine Terminal until 2040, assuming the approximate same vessel mix. Vessel calls could increase as much as 40 percent more than 2006 baseline operations (347 vessels calls) to 487 vessel calls per year by 2040.

A large number of variables could affect the refinery operations and the resulting level of Marine Terminal vessel calls, including market forces such as crude oil prices, California demand for gasoline and diesel fuels, increased fuel efficiency regulations, other refinery operations within California, and California crude oil production levels. These factors could increase or decrease Marine Terminal use. However, the estimated 2040 Marine Terminal vessel visits are considered a worst-case maximum of operations over the lease term.

ALTERNATIVES TO PROPOSED PROJECT

A wide range of alternatives was considered for evaluation in this Environmental Impact Report (EIR) (see Section 3.2, Alternatives Eliminated from Full Evaluation). Impacts associated with the following alternatives are evaluated in this EIR.

No Project Alternative

Under this alternative, CSLC would not grant a new lease and Chevron would cease to operate the Marine Terminal. Chevron would import crude oil and export products through other means, including the Port of Los Angeles (POLA) and Port of Long Beach (POLB) terminals, onshore pipelines, unit trains, trucking, or, most likely, a combination of those means. This could limit the operations of the Refinery and may reduce the Refinery's throughput. This alternative would decommission the Marine Terminal facilities and abandon components in place or remove them. Utilizing the POLA/POLB terminals would require use and modification of existing pipelines to the POLA/POLB and possible construction of new pipelines to the POLA/POLB. However, the existing POLA/POLB terminals and onshore pipelines are probably not able to handle the El Segundo Refinery products and may not have the capacity to transport all the crude oil through their facilities to the Refinery.

CBM Relocation in State Waters for Crude Only

Under this alternative, the Berth 4 conventional buoy mooring (CBM) and navigational moorings would be relocated into deeper water approximately two miles (3.2 km) offshore for crude oil offloading only. Permits from the United States Coast Guard (USCG), California Coastal Commission (CCC), and other agencies would be required for this relocation. This would allow VLCC, including those from the Middle East, to moor directly at the CBM (Marine Terminal) and offload the crude without lightering operations (although some lightering operations would continue related to other terminals). This alternative would reduce vessel trips to the Marine Terminal.

This location, approximately two miles (3.2 km) offshore, is the maximum practical distance to relocate the CBM system because of water depth, impact on operations, and several other factors. Panamex-size tankers would load refined products and offload crude at the existing Berth 3 CBM, which would remain in the same location under this alternative.

The existing USCG Safety Zone might need to be extended as relocating the Berth 4 CBM and navigational buoys would place them within recreational boat routes from Marina Del Rey and the Palos Verdes Peninsula to Santa Catalina Island.

SPM Replacement in State Waters for Crude Only

Under this alternative, the Marine Terminal would continue to operate, but the existing Berth 4 CBM would be decommissioned and replaced with a single point mooring (SPM) system located farther from shore in state waters. An SPM allows a ship to weathervane around the buoy to find a stable position, thereby minimizing the environmental impact on the system since the moored ship can readily adjust into prevailing weather without affecting offloading operations. The two most common types of SPM are the catenary anchor leg mooring (CALM) system and the single anchor leg mooring (SALM) system. The USCG determined that SPM are the least risky method to import crude oil because they decrease the likelihood, environmental impact, and severity of accidents due primarily to their location farther offshore than conventional moorings (Salancy 1994). Installing an SPM would require extending the existing pipelines, abandoning the existing Berth 4, installing the SPM farther offshore, and modifying the Marine Terminal pumping facilities to accommodate higher pressure from the longer pipelines.

As with installing the Berth 4 CBM farther offshore, installing an SPM would enable VLCC tankers to utilize the Marine Terminal directly instead of through lightering vessels. This SPM installation would reduce vessel trips to the Marine Terminal.

VLCC Use of Pier 400

Under this alternative, the Marine Terminal would continue to operate, but approximately 27 percent of Marine Terminal vessel calls would utilize the recently permitted Pier 400 facility. Pier 400 is a recently permitted deep-water, petroleum bulk liquids marine offloading and storage facility proposed for Berth 408 and related storage facilities on Terminal Island in the POLA. Due to safety concerns associated with the pipeline transporting products, i.e., gasoline, jet fuel, etc., through populated areas and the modification and heating requirements of transporting heavy crude oil through pipelines from the POLA/POLB, the only Marine Terminal traffic displaced under this alternative would be the VLCC traffic that currently transports light crude oil to the Refinery by lightering offshore and using smaller tankers to call on the Marine Terminal. This alternative would reduce vessel trips to the Marine Terminal.

Under this alternative, all exports of refined product and imports of heavier crude oil would continue using the existing Marine Terminal. However, a number of uncertainties are associated with the Pier 400 alternative. These include:

- Feasibility of using the Pier 400 facility is somewhat unknown because the facility is not in operation at the time of this writing;
- Due to potential vessel berthing restrictions, tank capacity, and flow rates at Pier 400, a VLCC may have to call on the berth twice; and
- This alternative could use existing pipelines, but some pipeline modifications would be required.

ENVIRONMENTAL IMPACTS AND MITIGATION

The proposed Project would generate potentially significant environmental impacts in system safety and reliability, water quality, biological resources, air quality, aesthetics, geological resources, land use, planning and recreation, noise, and cultural resources. All of these are associated with the potential future increase in vessel calls and throughput at the Marine Terminal and potential offshore construction over the life of the lease term.

Impacts to system safety and reliability involve the potential for fires and explosions, spill risk, and disturbance of potentially contaminated seafloor sediments.

Impacts to water quality could occur from oil spills at the Marine Terminal and from vessels in transit that could pollute waters due to oil spills. Impacts to biological resources from oil spills at the Marine Terminal could adversely affect species, Areas of Special Biological Significance, fisheries in the area, marine water quality, and possibly sediment quality over wide areas. Oil spills from vessels in transit could pollute waters and adversely affect avian species.

Impacts to air quality could occur if diesel particulate matter emissions from additional crude oil marine tankers exceed the South Coast Air Quality Management District (SCAQMD) significance threshold for incremental cancer or chronic risk. Using low sulfur fuels would reduce this impact, but it would still be significant per SCAQMD thresholds. The proposed Project would also likely exceed emissions of greenhouse gases (GHG) beyond SCAQMD thresholds.

Impacts to area aesthetics would occur if oil spills substantially degrade the character of the site and change the aesthetic expectations of viewers.

Several potentially significant impacts involving geology could affect future operations. Oil spills from ruptures of pipelines and other facilities could occur as a result of earthquake motion. Increased wave activity during a tsunami condition could create hazards for vessels in the berths and result in spilled crude oil or petroleum products during vessel unloading procedures. Liquefaction could result in settling of the ground surface and associated facilities, damaging pipelines and other facilities, which would result in an oil spill. As future operations could increase, this could be a significant impact.

The potential for increased activity over the lease term, which would increase the risk of oil spills, could also affect the use of shoreline land and/or recreational activities at the site of the spill and the surrounding area.

Maintenance activities that involve pipeline replacement during the lease period could disrupt sediment in Santa Monica Bay, which would in turn result in suspension and re-deposition of contaminants. These would be significant impacts that could be mitigated with appropriate sediment dispersion controls.

Maintenance activities may also include construction activities that could exceed local noise ordinances and perceptibly change sound levels, which could be considered a significant impact. However, with the application of appropriate noise control measures, these potential impacts would be reduced.

Modifying pipelines during maintenance would potentially disrupt or damage prehistoric or historic archaeological resources. With standard protection measures, this potentially significant impact can be reduced to a less than significant level.

Table ES-1 presents a summary of impacts and mitigation measures for the proposed Project. This table is presented by issue area. Within each issue area each impact is described and classified, recommended mitigation is listed, and the level of impact with mitigation is stated. Within each issue area, all significant adverse impacts that remain significant after mitigation (identified as Class I in this document) are presented first, followed by Class II significant adverse impacts that can be eliminated or reduced below an issue's significance criteria by the application of mitigation measures and then Beneficial impacts (Class IV). Adverse impacts that do not meet or exceed an issue's significance criteria (Class III) are discussed in Section 4 in their respective sections.

COMPARISON OF PROPOSED PROJECT AND ALTERNATIVES

No Project Alternative

Under the No Project Alternative, no new lease would be issued for the Marine Terminal and the Marine Terminal facilities would be abandoned, requiring crude inputs to and product exports from the refinery to develop other means of transportation. Although the long term disruption to the refinery capacity could be minimal, in the near- and mid-term, for a period of at least a few years, there would be a substantial drop in the transportation capabilities of the refinery which would cause a disruption in refinery output. There would also be an increase in the potential for energy supply disruptions as Southern California would be reduced to only two ports for receiving crude oil (POLA and POLB). This is summarized in Impact **ENE-1**, which would be an additional significant, Class I impact.

The No Project Alternative would also require the refinery to transport all crude and product by pipeline through populated areas, which would be an increase in severity of the risk of fire and explosions (Impact SSR-1) and a potential environmental justice impact (Impact EJ-1).

Abandonment of the Marine Terminal would also produce construction-related emissions that could exceed the SCAQMD thresholds for construction. This would be an additional significant impact.

There would be an associated increase in spill risk at the ports and offshore of the ports, which could impact biological resources, such as kelp beds near Palos Verde (although there would be a net decrease in biological impacts due to lack of spill risk in Santa Monica Bay) or could cause closure of the ports with resulting socioeconomic impacts.

However, as transportation by pipeline or other methods would not require loading and unloading vessels in the open waters at the Marine Terminal, the severity of spill risks would decrease, which would also result in a decrease in spill effects on aesthetics, biology and recreation. Also, since there would no longer be facilities at the Marine Terminal, geological impacts would no longer occur.

The No Project would also result in continuing lightering operations with the crude being directed both to other terminals to the north and to the POLA/POLB and subsequently transferred to the Chevron Refinery. As a result, oil spill impacts from lightering would continue to occur under the No Project Alternative.

CBM Relocation in State Waters for Crude Only

The CBM in state waters alternative would involve relocation of the existing Berth 4 (crude-oil-only berth) to deeper water within state waters. This would enable the larger, VLCC-class vessels to berth directly at the Marine Terminal and eliminate the additional vessel calls associated with lightering related to Marine Terminal operations in Federal waters. However, lightering operations for tankers destined for other terminals would likely continue. This alternative would involve the installation of additional pipelines to reach the new berth location, most likely an extension of the existing Berth 4 pipelines.

This alternative would have similar spill risks as the proposed Project. Although the number of vessel visits to the Marine Terminal would decrease due to the elimination of Marine Terminal related lightering, with an associated reduction in spill frequency, the VLCC vessels that would visit the new Berth 4 would be larger, resulting in a potentially larger worst-case spill scenario.

Some lightering operations would continue to occur from VLCC to provide crude to the other terminals, such as the Chevron San Francisco Bay Area Richmond Refinery, which in turn would result in continuing potential lightering oil spill impacts.

Also, since additional pipelines would have to be installed, there would be an increase in impact severity associated with potential disturbances of seafloor sediments.

Air quality impacts associated with peak day criteria emissions would be more severe than the proposed Project since the larger vessels would generate more emissions during the peak day than the proposed Project. However, air quality impacts related to GHG would be less severe since fewer vessels would operate within the South Coast Air Basin (SCAB) and, because Berth 4 would be farther away from shore, impacts of diesel emissions on health risk would be lower.

Some impacts would also occur to recreation associated with recreational vessel traffic near the extended berth.

The impacts on aesthetics would be less than those of the proposed Project since fewer vessels would visit the Marine Terminal and some of them would be farther away. Spill impacts on aesthetics would remain the same as the proposed Project.

SPM Replacement for Crude Only in State Waters

The SPM alternative would involve relocation of the existing Berth 4 (crude-oil-only berth) to deeper water within state waters and utilizing a single point mooring system instead of a CBM. This would enable the larger, VLCC-class vessels to berth directly at the Marine Terminal and eliminate the additional vessel visits associated with lightering related to Marine Terminal operations in Federal waters. However, lightering operations for tankers destined for other terminals would likely continue. This alternative would involve the installation of additional pipelines to reach the new berth, most likely an extension of the existing Berth 4 pipelines.

Impacts related to the proposed Project would be similar to those analyzed under the CBM alternative. Spill risks associated with the use of a SPM versus a CBM are similar; there may be some disadvantages of an SPM due to the longer hose required and the increased maintenance, yet there would also be some advantages of an SPM due to the ability of SPM to maneuver during inclement weather (less of an issue in the near-shore environment of this alternative than if it was farther out to sea). However, the differences are negligible. Some lightering operations would continue to occur from VLCC to provide crude to other terminals, which in turn would result in continuing potential lightering oil spill impacts.

VLCC Use of Pier 400

The Pier 400 alternative would direct the larger, VLCC-class vessels carrying light crude to Pier 400 for unloading and would utilize existing pipelines that would require some modifications to transport the crude oil to the refinery. Unloading of other crude vessels and the loading of product would still occur at the Marine Terminal. Unloading of crude oil from VLCC-class vessels could still technically take place at the Marine Terminal under emergency situations through lightering. This alternative would most likely require the modification and upgrading of existing pipeline systems between Chevron's Refinery and the Pier 400 facility.

This alternative would present a reduction in fire and explosion risk since the POLA facility currently requires the use of inert gas for all vessels. However, fire risks to populations along pipeline routes could increase and create environmental justice impacts. There would be a reduction in spill risk since fewer vessels would visit the Marine Terminal. Although vessels would visit the Pier 400 facility, the Pier 400 facility is within an enclosed berth and vessels are required to be completely boomed during unloading. Although a spill at the Pier 400 facility would still be considered a significant

impact on biological and socioeconomic resources, it would be a less severe impact on biological resources than a spill at the open-ocean Marine Terminal location. However, some lightering operations would continue to occur from VLCC to provide crude to other terminals, which in turn would result in continuing potential lightering oil spill impacts.

Potential reductions in spill risk would also be associated with a reduction in severity of spill impacts on aesthetics and recreation.

Impacts on air quality would be similar to the proposed Project as the peak day emissions of criteria pollutants would be similar. Emissions of GHG would be less than the proposed project as fewer vessels would visit the Marine Terminal/Pier 400 and some vessels would be able to utilize the POLA emission reduction features (such as shore-side electricity).

As fewer vessels would call at the Marine Terminal, there would be a reduction in health risk associated with diesel emissions. Although diesel emissions would occur at Pier 400, the requirements for cold ironing (use of onshore electric pumps and power) would reduce the emissions over the proposed Project levels over the lease term. Since fewer vessels would be using the Marine Terminal, there would also be a reduction in severity of impacts during a geological event.

This page intentionally left blank.

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
Section 4.1 System Safety and Reliability			
SRR-1	Potential for Fires and Explosions	I	<p>SSR-1a. Inert Gas Systems and Fire Response. The Applicant shall extend the use of inert gas to all vessels (tankers and barges) to reduce the possibility of fires and explosions. Monitoring shall ensure that oxygen is below 8 percent by volume. Response planning documents shall address response equipment and fire boats that would respond to a fire at the offshore location. These documents shall be completed within one year of lease renewal and reports submitted to CSLC annually thereafter.</p> <p>SSR-1b. Lease Modifications. The lease for the facility shall contain a clause allowing the CSLC to add or modify mitigation measures in the event that cost-effective technologies become available that would significantly improve protection from fires or explosions if they could be readily implemented during the lease term, as defined by "best achievable technology" (PRC section 8750(d)). Modifications should be made if a fire or explosion occurs during the lease term in order to take advantage of lessons learned. Annual reports shall be submitted to CSLC identifying any lease modifications.</p>
SRR-2	Potential for Spills	I	<p>SSR-2a. Pipeline Vacuum System. The Applicant shall ensure that the pipeline vacuum system is operational and able to function at all times when the Marine Terminal is not loading. This shall be conducted within one year of lease renewal and reports submitted to CSLC annually thereafter.</p> <p>SSR-2b. Pressure Point Analysis System. The Applicant shall re-assess the pressure point analysis system to ensure that it is utilizing the most recent technologies, including pressure sensor accuracy and maintenance and testing, sensor location and pressure point analysis software, and is designed to detect anomalies during loading operations. This shall be conducted within one year of lease renewal and reports submitted to CSLC</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			<p>annually thereafter.</p> <p>SSR-2c. Testing of Spill Mitigation Equipment. The Applicant shall conduct periodic (at least annual) testing of the vacuum and pressure point analysis by utilizing by-pass valves, or other equivalent methods, to verify the function of these systems and make adjustments as needed. This shall be conducted within one year of lease renewal and reports submitted to CSLC annually thereafter.</p> <p>SSR-2d. Pipeline Leak Detection. Within one year of lease renewal, the Applicant shall ensure that both the shipping end and the receiving end of the loading pipelines are equipped with flow meters that utilize a means of conducting automatic and continuous flow balancing to an accuracy of at least 2 percent of maximum design flow rate within 5 minutes. Any deviations shall activate an alarm system at both the shipping and receiving locations. The system shall be tested periodically (at least annually) by utilizing by-pass valves, or other equivalent methods, to assess the capability of the leak detection systems. Annual reports shall be submitted to CSLC.</p> <p>SSR-2e. Double Hulled Vessels. During the term of the 30-year lease, all vessels that call at the Marine Terminal shall be double hulled.</p> <p>SSR-2f. Pipeline Inspections. In addition to periodic inspections and surveys, within one year of lease renewal, the Applicant shall implement smart-pig inspections, cathodic inspections of the entire pipelines, bathymetric surveys and visual remote-operated-vehicle inspections of all Marine Terminal pipelines. This would require modifying some existing pipelines to allow for smart-pigs to pass through all pipelines. The entire pipeline route should be visually inspected, and bathymetric surveys conducted, at least every three years or after major winter storms. Visual surveys shall inspect a minimum of unsupported spans, anchors and</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			<p>mooring lines and other anomalies. The cathodic protection testing should be conducted per NACERP0169 and API1570. Close interval cathodic protection testing should be conducted every three to five years to ensure that the cathodic protection system is operating correctly throughout the entire length of the pipelines. Written results of each inspection in the form of a report shall be submitted to the CSLC annually and pipelines repaired as necessary.</p> <p>SSR-2g. Bow Tube and Thruster Leaks. During the term of the 30-year lease, the Applicant shall implement techniques to detect bow tube and thruster leaks for all vessels.</p> <p>SSR-2h. Motor Operated Valve System. During the term of the 30-year lease, the Applicant shall ensure that the motor operated valve control system is reliable through testing and maintenance procedures, as indicated in past process hazards reports.</p> <p>SSR-2i. Automatic Identification System Shipboard Equipment. During the term of the 30-year lease, all vessels calling at the Marine Terminal shall be equipped with automatic identification system equipment.</p> <p>SSR-2j. Berm and Drainage at Onshore Marine Terminal. The Applicant shall install drain protection in the form of sealable coverings, valves, or another method to prevent flow of spilled oil through the drains at the onshore areas of the Marine Terminal. The drain protection would prevent a spill of material at the loading pumps or other Marine Terminal equipment from entering the drains and affecting the ocean. All areas of the onshore Marine Terminal shall be protected by berms that can contain a worst-case discharge from the pumps or pipelines, including potential drain-down from Refinery tankage. Onshore pipelines shall be protected from vehicle impacts. These protections shall occur within one year of lease renewal and reports submitted to CSLC annually thereafter.</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			SSR-2k. Pipeline Maintenance. Within one year of lease renewal, the Applicant shall ensure that the recommendations from all previous hazard and operability studies and the cathodic protection system reports are implemented, specifically the use of dielectric fittings, periodic offshore cathodic protection surveys and potentials, replacement of deep well anodes as necessary, monthly readings of rectifier current and voltage, inspection of the pipeline casings related to cathodic potential and corrosion, and periodic onshore and offshore inspection of pipeline systems by corrosion engineers. Hazard and operability studies shall be updated as required by the EPA or OSHA and reports submitted to CSLC annually.
SSR-3	Disturbance of Potentially Contaminated Seafloor Sediments	II	SSR-3. Sampling Program for Sediments Within the Proposed Project. 60 days prior to the start of any construction (ongoing during construction, as applicable) and prior to conducting any offshore activities that would disturb sediments, the nature of potential contamination within these sediments shall be defined. Samples should be collected and analyzed, and results summarized in a report to the CSLC and other interested parties. This report should include, at a minimum, recommendations to minimize disruption of any identified contaminated sediments, including removal if necessary. Sediments found to be contaminated shall be appropriately treated prior to conducting any offshore activities.
Section 4.2 Water and Sediment Quality			
WSQ-1	Oil Spills	I	SSR-2a through SSR-2k. The Applicant shall implement these measures to reduce the frequency and impacts of spills by decreasing detection times and increasing response capabilities. This process shall occur within one year of lease renewal and reports submitted to CSLC annually thereafter.
WSQ-2	Disturbance of Seafloor Sediments	II	SSR-3. Sampling Program for Sediments Within the Proposed Project. 60 days prior to the start of any construction (ongoing during construction, as

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			<p>applicable) and prior to conducting any offshore activities that would disturb sediments, the nature of potential contamination within these sediments shall be defined. Samples should be collected and analyzed, and results summarized in a report to the California State Land Commission and other interested parties. This report should include, at a minimum, recommendations to minimize disruption of any identified contaminated sediments, including removal if necessary. Sediments found to be contaminated shall be appropriately treated prior to conducting any offshore activities.</p> <p>WSQ-2. Sediment Sampling within Scour Areas. The Applicant shall perform chemical analysis of sediment samples collected from within the propeller-wash scour areas beneath Berths 3 and 4, and if contaminant concentrations exceed biological effects thresholds, the Applicant shall remediate the contamination or move the Berth to uncontaminated areas. The field sampling and analysis program shall be performed at least once for the existing berth locations and written reports shall be submitted in accordance with MM SSR-3 60 days prior to the start of any construction and shall be ongoing during construction (as applicable). Additional sediment sampling, analysis, and reporting shall be conducted within projected scour areas whenever the berths are relocated more than 500 feet (152 m) from their present locations.</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
Section 4.3 Biological Resources			
BIO-1	Oil Spill Impacts to Marine Biological Resources	I	<p>BIO-1a. Updating the Oil Spill Contingency Plan to Reflect the Project Changes. The Applicant shall update the Oil Spill Contingency Plan to incorporate changes in activities that result from the proposed Project within one year of lease renewal and submit reports to CSLC annually thereafter. For example, the plan shall incorporate detailed response procedures for marine oil spills resulting from vessel groundings or collisions, as well as for pipeline failure and failures occurring during transfer of the oil to and from the barge. Worst-case discharge scenarios shall be updated accordingly. In addition, lessons learned from the cleanup of the 1997 Platform Irene or 2010 Deepwater Horizon oil spills shall be incorporated into the Response Plan. These lessons include operator training in recognizing the significance of deviations in pipeline operating parameters, inspections required to restarting equipment that automatically shuts down in response to a process deviation, and rapidly implementing surveillance activities following process deviations to determine if a spill has occurred.</p> <p>The personnel and training sections of the Oil Spill Contingency Plan shall be updated and identify training requirements for all personnel that would be utilized to respond to oil spills. At a minimum, new personnel shall be trained immediately upon their hiring in the overall operational aspects of oil spill response, including the proper use of all equipment that would be utilized in oil spill response. Annual training for all personnel, which is a Federal requirement, shall also be included in the Oil Spill Contingency Plan to provide personnel with an understanding of their training responsibilities. The annual training shall include training in the operation of new equipment that may be utilized in oil spill response, retraining in the operation of existing equipment, and review of the oil spill response requirements that are identified in the Oil Spill Contingency Plan.</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			BIO-1b. Vessels That Call on the Terminal Shall Implement Their Own Oil Spill Response Plan. This plan shall comply with 33 Code of Federal Regulations 155, Subpart D and shall be submitted within one year of lease renewal and reports submitted to CSLC annually thereafter.
BIO-2	Oil Spill Impacts to Commercial and Recreational Fishing	I	BIO-1a, BIO-1b, and SSR-2a through SSR-2k. These mitigation measures should occur 60 days prior to the start of any construction and be ongoing during construction (as applicable).
BIO-3	Vessel Traffic and Marine Construction Impacts to Biological Resources	II	<p>BIO-3a: Marine Mammal and Turtle Contingency Plan. The Applicant shall ensure that vessel operators develop and implement a contingency plan that focuses on recognition and avoidance procedures when marine mammals and turtles are encountered at sea. The plan shall be submitted within one year of lease renewal and reports submitted to CSLC annually thereafter. Minimum components of the plan include:</p> <ol style="list-style-type: none"> Existing and new vessel operators shall be trained by a marine mammal expert to recognize and avoid marine mammals prior to Project-related activities. Training sessions shall focus on the identification of marine mammal species, the specific behaviors of species common to the Project area and transport routes, and awareness of seasonal concentrations of marine mammal and turtle species. The operators shall be re-trained annually. A minimum of two marine mammal observers shall be placed on all support vessels during the spring and fall gray whale migration periods (generally December through May), and during periods/seasons when other marine mammals, such as migrating fin, blue, and humpback whales (generally June through November), are known to be in the Project area in relatively large numbers. Observers can include the vessel operator and/or crew members, as well as any Project worker that has received

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			<p>proper training. Vessel operators and crews shall maintain a vigilant watch for marine mammals and sea turtles to avoid striking sighted protected species.</p> <p>3. Vessel operators will make every effort to maintain a distance of 1,000 feet (305 m) from sighted whales, and 150 feet (45.7 m) or greater from sea turtles or smaller cetaceans whenever possible.</p> <p>4. When small cetaceans are sighted while a vessel is underway (e.g., bow-riding), vessel operators shall attempt to remain parallel to the animal's course. When paralleling whales, supply vessels will operate at a constant speed that is not faster than the whales' and shall avoid excessive speed or abrupt changes in direction until the cetacean has left the area.</p> <p>5. Per NOAA recommendations, vessel speeds shall not exceed 11.5 mph (10 knots) when mother/calf pairs, groups, or large assemblages of cetaceans are observed near an underway vessel, when safety permits (i.e., excluding during poor sea and weather conditions, thereby ensuring safe vessel maneuverability under those special conditions). A single cetacean at the surface may indicate the presence of submerged animals in the vicinity; therefore, prudent precautionary measures should always be exercised. The vessel should attempt to route around the animals, maintaining a minimum distance of 300 feet (91.4 m) whenever possible.</p> <p>6. Whales may surface in unpredictable locations or approach slowly moving vessels. When an animal is sighted in the vessel's path or in close proximity to a moving vessel and when safety permits, operators will reduce speed and shift the engine to neutral. Vessel operators will not engage the engines until the animals are clear of the area.</p> <p>7. Support vessels will not cross directly in front of migrating whales, other threatened or endangered marine mammals, or marine turtles.</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			<p>8. Support vessels shall not separate female whales from their calves.</p> <p>9. Vessel operators will not herd or drive whales.</p> <p>10. If a whale engages in evasive or defensive action, support vessels will drop back until the animal moves out of the area.</p> <p>11. Collisions with marine wildlife will be reported promptly to the Federal and state agencies listed below pursuant to each agency's reporting procedures.</p> <p>Stranding Coordinator, Southeast Region (currently, Joe Cordaro) National Marine Fisheries Service Long Beach, CA 90802-4213 (310) 980-4017</p> <p>Enforcement Dispatch Desk California Department of Fish and Game Long Beach, CA 90802 (562) 590-5132 or (562) 590-5133</p> <p>California State Lands Commission Environmental Planning and Management Division Sacramento, CA 95825-8202 (916) 574-1900</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			BIO-3b. Burial of Pipelines. Burial of subsea pipelines and cables to a depth of 3.28 feet (1 m) except where precluded by seafloor substrates. A 3.28 feet (1 m) burial depth would sufficiently protect gray whales foraging in bottom sediments on their northbound migration. It is understood that this burial depth may not be achieved in areas where there is localized, higher sediment resistance, or substantial variations in bottom slope or cable ship speed; however, such locations should be documented and monitored during regular inspection surveys. If, during inspection, sections of the cable or pipeline are found to be exposed contrary to the original as-built burial configurations, remedial actions will be taken within 60 days to re-bury the lines. Specific actions shall be pre-approved by CSLC staff. This mitigation measure shall occur 60 days prior to the start of any construction and shall be ongoing during construction (as applicable).
BIO-4	Vessel Traffic and Marine Construction Impacts to Commercial and Recreational Fishing	II	BIO-4. Use Designated Marine Traffic Corridors. Support and tankering vessels shall use designated traffic corridors where possible during the term of the 30-year lease. See BIO-3b .
BIO-5	Oil Spill Impacts to Onshore Biological Resources	I	BIO-5. Update the Oil Spill Contingency Plan to Protect Sensitive Resources. The Oil Spill Contingency Plan shall be revised and updated to address protection of sensitive biological resources and revegetation of any areas disturbed during an oil spill from the proposed pipeline or cleanup activities. The OSCP shall be submitted within one year of lease renewal and reports submitted to CSLC annually thereafter. The revised Oil Spill Contingency Plan shall, at a minimum, include: 1. Specific measures to avoid impacts on Federal- and State-listed endangered and threatened species and Environmentally Sensitive Habitat Areas during response and cleanup operations. Where feasible, low-

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			<p>impact, site-specific techniques such as hand-cutting contaminated vegetation and using low-pressure water flushing from vessels to remove spilled material from particularly sensitive wildlife habitats, such as coastal estuaries, i.e., Ballona Wetlands, because procedures such as shoveling, bulldozing, raking, and drag-lining can cause more damage to a sensitive habitat than the oil spill itself. The Oil Spill Contingency Plan shall also evaluate the non-cleanup option for ecologically vulnerable habitats such as coastal estuaries.</p> <p>2. Specific measures requiring spill response personnel to be adequately trained for response in terrestrial environments and spill containment and recovery equipment to be maintained in full readiness. Inspection of equipment and periodic drills shall be conducted at least annually and the results evaluated so that spill response personnel are familiar with the equipment and with the Project area including sensitive onshore biological resources.</p> <p>3. When habitat disturbance cannot be avoided, stipulations for development and implementation of site-specific habitat restoration plans and other site-specific and species-specific measures appropriate for mitigating impacts on local populations of sensitive wildlife species and to restore native plant and animal communities to pre-spill conditions. Access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas shall be identified. The Oil Spill Contingency Plan shall include species- and site-specific procedures for collection, transportation and treatment of oiled wildlife, particularly for sensitive species.</p> <p>4. Procedures for timely re-establishment of vegetation that replicates the habitats disturbed (or, in the case of disturbed habitats dominated by non-native species, replaces them with suitable native species) including: measures preventing invasion and/or spread of invasive or undesired plant</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			species; restoration of wildlife habitat; restoration of native communities and native plant species propagated from local genetic sources including any sensitive plant species (such as the southern tarplant); and replacement of trees at the appropriate rate. 5. Monitoring procedures and success criteria to be satisfied for restoration areas. The success criteria shall consider the level of disturbance and condition of the adjacent habitats. Monitoring shall continue for three to five years, depending on habitat, or until the success criteria are met. Appropriate remedial measures, such as replanting, erosion control or control of invasive plant species, shall be identified and implemented if it is determined that the success criteria are not being met.
Section 4.4 Air Quality			
AQ-1	Exceedance of Incremental Health Risk Threshold During Project Operations	I	AQ-1. Low Sulfur Fuels in Auxiliary Engines. Starting at the beginning of the new 30-year lease period and continuing throughout the 30-year lease period, all main and auxiliary engines on crude oil marine tankers calling at the Marine Terminal shall use marine diesel oil (MDO) or marine gas oil with a maximum 0.2 percent sulfur by weight. This measure shall apply while the tankers are within 20 nautical miles (37.0 kilometers) of Point Fermin, including while hoteling or transferring product at the Marine Terminal.
AQ-2	Emissions of Greenhouse Gases Within the SCAB Could Exceed SCAQMD Thresholds	I	AQ-2. Greenhouse Gas Reduction Strategies. The Applicant shall implement a program to quantify and reduce greenhouse gas emissions associated with Marine Terminal operations, such as using green electrical power to run onshore equipment, requiring tugs to use biodiesel, using marine diesel oil fuels in vessel main and auxiliary engines while in the SCAB, and reducing vessel speed while in the SCAB, within one year of lease renewal and submit reports to CSLC annually thereafter.

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
Section 4.5 Aesthetics			
AES-1	Oil Spills and Resultant Cleanup Operations Affect Visual Quality	I	SSR-1a and SSR-1b , SSR-2a through SSR-2k , and BIO-1a and BIO-1b
Section 4.6 Geological Resources			
GEO-1	Rupture of Facilities from Earthquake Motion	I	<p>GEO-1a. Implement Site-Specific Geotechnical and Seismic Evaluation Results. The Applicant shall complete a site-specific geotechnical and seismic-hazard evaluation for any new facilities or pipeline routes including faulting, ground shaking, liquefaction hazards, landslides and slope stability issues. The Applicant shall submit certified copies of these reports to the California State Lands Commission for review and approval 60 days prior to the start of any construction and maintain an ongoing process during construction (as applicable). The Applicant shall implement all recommendations from the Geotechnical and Seismic studies as directed by the CSLC. In addition, any new engineered structures, including pipeline alignment and profile drawings, buildings, other structures, other appurtenances and associated facilities, shall be designed, signed, and stamped by California registered professionals certified to perform such activities in their jurisdiction such as Civil, Structural, Geotechnical, Electrical and Mechanical Engineering.</p> <p>GEO-1b. Seismic Resistant Design. The Applicant shall perform seismic evaluation and design for all existing facilities or pipelines and employ current industry seismic design guidelines including but not limited to: Guidelines for the Design of Buried Steel Pipe by American Lifeline Alliance (2001), and Guidelines for the Seismic Design and Assessment of Natural Gas and Liquid Hydrocarbon Pipelines by Pipeline PRCI (2004), and California State Lands Commission Marine Oil Terminal Engineering and Maintenance Standards for seismic resistant design of the pipeline. The</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			<p>seismic evaluation of existing facilities shall be conducted in accordance with the Local Emergency Planning Committee Region 1 "Guidance for CalARP Seismic Assessments" including a walkthrough by a qualified seismic engineer. In addition, post-event inspections must follow the Marine Oil Terminal Engineering and Maintenance Standards guidelines. This evaluation and design shall be conducted within one year of lease renewal and reports submitted to CSLC annually thereafter.</p> <p>GEO-1c. Seismic Inspection. During the term of the 30-year lease, the operator shall cease associated pipeline operations and inspect all project-related pipelines and storage tanks following any seismic event in the region (Los Angeles County and offshore waters of the Santa Monica Bay and southern Channel Islands) that exceeds a ground acceleration of 13 percent of gravity (0.13 g). The operator shall report the findings of such inspection to the CSLC, the city of El Segundo, and the county of Los Angeles. The operator shall not reinstate operations of the Marine Terminal and associated pipelines within the city of El Segundo until authorized by the CSLC.</p>
GEO-2	Oil Spills from Tsunami Wave Damage	I	<p>GEO-2. Tsunami Alert. Tsunami response training and procedures shall be developed to assure that construction and operations personnel will be prepared to act in the event of a large seismic event. As part of the overall emergency response planning for this project, the procedures shall include immediate evacuation requirements in the event that a large seismic event is felt that could affect the proposed Project site such that all precautions can be made in the event of a local tsunami. This shall include the departure of all vessels in berth or in the area. These procedures shall be submitted within one year of the lease renewal and reports submitted to CSLC annually thereafter.</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
GEO-3	Oil Spills as a Result of Liquefaction	I	GEO-1a through GEO-1c
Section 4.7 Land Use, Planning and Recreation			
LUPR-1	Accidental Oil Releases Could Affect Recreational Activities	I	Measures provided in the Oil Spill Contingency Plan and identified in MM SSR-1a and SSR-1b, SSR-2a through SSR-2k, and SSR-3 and MM BIO-1a and BIO-1b, BIO-3a and BIO-3b, BIO-4, and BIO-5.
Section 4.8 Noise			
NOI-1	Construction Could Increase Noise Levels at Beach Areas	II	NOI-1. Construction Noise Mitigation. Construction activities shall be limited to the hours between 7:00 am and 6:00 pm and shall not occur during the weekends or on Federal holidays. A Noise Mitigation Plan, as required by the city of El Segundo (General Plan objective N.1-2), shall be prepared by the applicant to minimize noise impacts on beach goers. The Noise Mitigation Plan shall be submitted to the California State Lands Commission staff for review and approval 60 days prior to the start of any construction.
Section 4.9 Energy			
None	None	NA	NA
Section 4.10 Cultural Resources			
CUL-1	Damage to or Disruption of Prehistoric or Historic Resources	II	CUL-1a. Cultural Resources Avoidance Plan. 60 days prior to the start of any construction activities, if any structure 45 years and older will be affected by the proposed Project, the structure(s) shall be assessed and evaluated for potential historical significance, including, but not limited to, eligibility for listing under the California Register of Historical Resources. If the resource is determined to be eligible for listing in the California Register, a cultural resources avoidance plan shall be prepared to identify means to avoid impacts to cultural resources, if feasible. If avoidance is determined to

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			<p>be infeasible, a research and recovery plan shall be prepared. In the event that archaeological resources are unearthed during Project subsurface activities, all earth-disturbing work within a 200-meter radius must be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume. This shall be an ongoing process during construction (as applicable).</p> <p>CUL-1b. Phase I Field Reconnaissance. Prior to finalization of the location for pipeline rearrangement or replacement and 60 days prior to the start of any construction, Phase I field reconnaissance of the off-shore Marine Terminal area will gather geophysical data, including magnetometer and side scan sonar runs to identify any cultural resources. Shallow water scuba surveys may be required in areas that vessels cannot access. Findings from the analyses of the geophysical data will be compared with archival information and databases maintained by the CSLC and Bureau of Energy Management, Regulation, and Enforcement. This shall be an ongoing process during construction (as applicable).</p> <p>CUL-1c. Phase II Resource Evaluation. If resources that will be impacted are encountered and identified in Phase I, Phase II will evaluate the resource as to its eligibility to the California Register by a qualified marine archaeologist. For offshore resources, this phase consists of a survey of the identified resources using a Remotely Operated Vehicle or scuba reconnaissance, if necessary, to collect further information about the resource, such as intactness, formal identification, and information necessary to provide an evaluation of its significance to California history. This evaluation shall occur 60 days prior to the start of any construction and shall be an ongoing process during construction (as applicable).</p> <p>CUL-1d. Phase III Cultural Resources Avoidance Plan. Phase III would be</p>

Table ES-1
Summary of Environmental Impacts for the Proposed Project

Impact Class	I	=	Significant adverse impact that remains significant after mitigation.
	II	=	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
	III	=	Adverse impact that does not meet or exceed an issue's significance criteria.
	IV	=	Beneficial impact.

Impact No.	Impact	Impact Class	Recommended Mitigation Measures
			required if the resource is determined to be eligible for listing in the California Register. 60 days prior to the start of any construction, a cultural resources avoidance plan shall be prepared to identify means to avoid impacts to cultural resources, if feasible, including modifications to the location of the pipelines. If avoidance is determined to be infeasible, a research and recovery plan shall be prepared. In the event that archaeological resources are unearthed during Project subsurface activities, all earth disturbing work within a 200-meter radius must be temporarily suspended or redirected until an archeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume. This shall be an ongoing process during construction (as applicable).

Table ES-2
Summary of Environmental Impacts for Proposed Project and Alternatives

Impact Class I = Significant adverse impact that remains significant after mitigation.
 II = Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
 III = Adverse impact that does not meet or exceed an issue's significance criteria.
 IV = Beneficial impact.
 NI = No Impact; NA = Not Applicable; NC = Not Classified, ↑ = greater severity, ↓ = less severity

Impact No.	Impact Description	Proposed Project	No Project	CBM Berth 4 State Waters	SPM Berth 4 State Waters	Pier 400	Explanation
Section 4.1 Hazards and Hazardous Materials							
SSR-1	Potential for Fires and Explosions	I	I↑	I	I	I↑	The No Project and Pier 400 could redirect shipments through more populated areas. Pier 400 already requires the use of inert systems.
SSR-2	Potential for Spills	I	I↓	I	I	I↓	The consequences of spills under the No Project and Pier 400 would be reduced. The frequency of spills under the offshore berths alternatives would be reduced, but severity of consequences may increase due to larger vessels.
SSR-3	Disturbance of Potentially Contaminated Seafloor Sediments	II	II	II↑	II↑	II	Increased lengths of pipeline installation/replacement under the offshore berths alternatives.

Table ES-2
Summary of Environmental Impacts for Proposed Project and Alternatives

Impact Class I = Significant adverse impact that remains significant after mitigation.
 II = Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
 III = Adverse impact that does not meet or exceed an issue's significance criteria.
 IV = Beneficial impact.
 NI = No Impact; NA = Not Applicable; NC = Not Classified, ↑ = greater severity, ↓ = less severity

Impact No.	Impact Description	Proposed Project	No Project	CBM Berth 4 State Waters	SPM Berth 4 State Waters	Pier 400	Explanation
Section 4.2 Water and Sediment Quality							
WSQ-1	Oil Spills	I	I↓	I	I	I↓	Water-quality impacts would shift location as vessels transport to other terminals under the alternatives. Spills would remain significant.
WSQ-2	Disturbance of Seafloor Sediments	II	NI	II↑	II↑	II	Relocation of the moorings would erode a new area of potentially contaminated sediment, but its impact would still be mitigable.
Section 4.3 Biological Resources							
BIO-1	Oil Spill Impacts to Marine Biological Resources	I	I↓	I	I	I↓	The consequences of spills under the No Project and Pier 400 would be reduced. The frequency of spills under the offshore berths alternatives would be reduced, but severity of consequences may increase due to larger vessel volumes.
BIO-2	Oil Spill Impacts to Commercial and Recreational Fishing	I	I↓	I	I	I↓	No Project would result in shift to onshore/pipeline transport.

Table ES-2
Summary of Environmental Impacts for Proposed Project and Alternatives

Impact Class I = Significant adverse impact that remains significant after mitigation.
 II = Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
 III = Adverse impact that does not meet or exceed an issue's significance criteria.
 IV = Beneficial impact.
 NI = No Impact; NA = Not Applicable; NC = Not Classified, ↑ = greater severity, ↓ = less severity

Impact No.	Impact Description	Proposed Project	No Project	CBM Berth 4 State Waters	SPM Berth 4 State Waters	Pier 400	Explanation
BIO-3	Vessel Traffic and Marine Construction Impacts to Biological Resources	II	II↓	II	II	II↓	No Project would result in shift to onshore/pipeline transport.
BIO-4	Vessel Traffic and Marine Construction Impacts to Commercial and Recreational Fishing	II	II↓	II	II	II↓	No Project would result in shift to onshore/pipeline transport. Incremental traffic increase compared to existing baseline at Pier 400 would be minimal.
BIO-5	Oil Spill Impacts to Onshore Biological Resources	I	I↓	I↓	I↓	I↓	Sighting terminal farther offshore would reduce potential frequency for oil spills to contact shoreline.

Table ES-2
Summary of Environmental Impacts for Proposed Project and Alternatives

Impact Class I = Significant adverse impact that remains significant after mitigation.
 II = Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
 III = Adverse impact that does not meet or exceed an issue's significance criteria.
 IV = Beneficial impact.
 NI = No Impact; NA = Not Applicable; NC = Not Classified, ↑ = greater severity, ↓ = less severity

Impact No.	Impact Description	Proposed Project	No Project	CBM Berth 4 State Waters	SPM Berth 4 State Waters	Pier 400	Explanation
Section 4.4 Air Quality							
AQ-1	Exceedance of Incremental Health Risk Threshold During Project Operations	I	I	I↓	I↓	I↓	No Project could generate health risks due to other means of transportation. Berths farther away from shore would have a lower health risk impact. The lower emissions at Pier 400 would reduce emission impacts. Note: increase peak day criteria emissions with berths alternatives, decreased GHG emissions within SCAB with alternatives.
AQ-2	Emissions of Greenhouse Gases within the SCAB Could Exceed SCAQMD Thresholds	I	I	III	III	III	No Project could produce similar, greater than or less GHG emissions depending on crude source. Reduction in vessel traffic for CBM, SPM and Pier 400 alternatives would be less than significant.

Table ES-2
Summary of Environmental Impacts for Proposed Project and Alternatives

Impact Class I = Significant adverse impact that remains significant after mitigation.
 II = Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
 III = Adverse impact that does not meet or exceed an issue's significance criteria.
 IV = Beneficial impact.
 NI = No Impact; NA = Not Applicable; NC = Not Classified, ↑ = greater severity, ↓ = less severity

Impact No.	Impact Description	Proposed Project	No Project	CBM Berth 4 State Waters	SPM Berth 4 State Waters	Pier 400	Explanation
AQ-3	Exceedance of Air Quality Standards During Construction – No Project Alternative	III	I	III	III	III	No Project would exceed daily construction thresholds as abandonment would require more construction.
AQ-4	Criteria Emissions Associated With Vessel Operations Would Exceed SCAQMD Thresholds	III	III	I	I	III	Emissions from using a VLCC at the Marine Terminal would exceed SCAQMD thresholds.
Section 4.5 Aesthetics							
AES-1	Oil Spills Affect on Visual Quality	I	I↓	I	I	I↓	The consequences of spills under the No Project and Pier 400 would be reduced. Under all alternatives, fewer vessels would visit the Marine Terminal.
Section 4.6 Geological Resources							
GEO-1	Rupture of Facilities from Earthquake Motion	I	NI	I↑	I↑	I↓	Pumping time would be the same for berth alternatives. Pier 400 would have larger pumps and less pumping time.
GEO-2	Oil spills From Tsunami Wave Damage	I	NI	I	I	I↓	
GEO-3	Oil spills as a Result of Liquefaction	I	NI	I	I	I↓	

Table ES-2
Summary of Environmental Impacts for Proposed Project and Alternatives

Impact Class I = Significant adverse impact that remains significant after mitigation.
 II = Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
 III = Adverse impact that does not meet or exceed an issue's significance criteria.
 IV = Beneficial impact.
 NI = No Impact; NA = Not Applicable; NC = Not Classified, ↑ = greater severity, ↓ = less severity

Impact No.	Impact Description	Proposed Project	No Project	CBM Berth 4 State Waters	SPM Berth 4 State Waters	Pier 400	Explanation
Section 4.7 Land Use, Planning, and Recreation							
LUPR-1	Accidental Oil Releases Could Affect Recreational Activities	I	NI	I	I	I	See Impact SSR-2
LUPR-2	Effect on Vessel Traffic Near New Mooring	NA	NA	II	II	NA	The new mooring could create additional effects on recreational boaters.
Section 4.8 Noise							
NOI-1	Construction Could Increase Noise Levels at the Beach	II	II	II	II	II	Construction could occur for all alternatives.
Section 4.9 Energy							
ENE-1	Loss of Petroleum Refining Capacity or an Increase in Energy Supply Disruptions in Southern California	NI	I	NI	NI	NI	No Project temporary loss of refining capacity or energy supply disruptions due to abandonment of Marine Terminal.
Section 4.10 Cultural Resources							
CUL-1	Damage to or Disruption of Prehistoric or Historic Resources	II	II	II	II	II	Construction could occur for all alternatives.
CUL-2	Damage to or Disruption of Prehistoric or Historic Resources During Offshore Activities	NA	NA	II	II	NA	Potential impacts of the construction of pipelines farther offshore.

Table ES-2
Summary of Environmental Impacts for Proposed Project and Alternatives

Impact Class I = Significant adverse impact that remains significant after mitigation.
 II = Significant adverse impact that can be eliminated or reduced below an issue's significance criteria.
 III = Adverse impact that does not meet or exceed an issue's significance criteria.
 IV = Beneficial impact.
 NI = No Impact; NA = Not Applicable; NC = Not Classified, ↑ = greater severity, ↓ = less severity

Impact No.	Impact Description	Proposed Project	No Project	CBM Berth 4 State Waters	SPM Berth 4 State Waters	Pier 400	Explanation
Section 5.0 Socioeconomics and Environmental Justice							
SOC-1	Displacement or Termination of Economic Activity	III	I	III	III	I	No Project would reduce refinery throughput, thereby potentially displacing economic activity. Increased use of the ports could cause ports closures if there is a spill (for No Project and Pier 400)
SOC-2	Decreased Fuel Supply and Increased Fuel Supply Demand	III	I	III	III	III	No Project would reduce refinery throughput, thereby reducing southern California fuel supply and increasing demand for delivery and utilization of basic public services that cannot be met by the government.
EJ-1	Increased Use of Pipelines Could Adversely Affect Populations	NI	I	NI	NI	I	Increased use of pipelines due to the loss of the Marine Terminal or the increased use of port facilities could cause impacts to populations.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The CEQA Guidelines (section 15126.6 [d]) require that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Project. The CEQA Guidelines (section 15126.6 [e][2]) further state, in part, that “*If the environmentally superior alternative is the ‘No Project’ alternative*, the EIR shall also identify an environmentally superior alternative among the other alternatives” (emphasis added).

The CBM and SPM berth alternatives and the Pier 400 alternative would all lessen the severity of some significant impacts associated with the proposed Project. The CBM and SPM alternatives would also increase the severity of some impacts and neither of these alternatives would lessen the severity of significant spill risk impacts.

The Pier 400 alternative would take advantage of infrastructure developments by the POLA to reduce air emissions and measures instituted in ports to contain and reduce the impacts of spills. However, there are some uncertainties associated with the Pier 400 alternative. The Pier 400 project has not been constructed at this writing. In addition, the exact capacities and integrity of the pipelines between the Refinery and the POLA are not known at this time. The extent of the required modifications to pipelines to enable them to transport crude oil from the Pier 400 facility to the Refinery is not known and the modifications may require permits from other agencies, which may take a substantial amount of time.

Lightering operations would still occur as a result of the transportation of crudes from the VLCC to other terminals. In addition, with potential vessel berthing restrictions, tank capacity, and flow rates at Pier 400, a VLCC may have to call on Pier 400 twice. The feasibility of using the Pier 400 facility is somewhat unknown because the facility is not in operation at the time of this writing and the likelihood of its use is somewhat speculative. In addition, some vessels would need to travel to the POLA instead of the current Marine Terminal site. Should a vessel oil spill occur on the south side of the Palos Verdes Peninsula, the spill would affect sensitive kelp beds in that region, although there would be a net reduction in spill risk due to the reduction in vessel traffic at the Marine Terminal and the elimination of Marine Terminal related lightering vessels.

Also, a spill in the port could cause a shutdown of the port, similar to the *M/V Sammi Superstars* in the POLB, causing socioeconomic issues. Adding pipeline capacity from Pier 400 to the El Segundo Refinery would likely be a significant environmental justice issue.

Therefore, the Pier 400 Alternative has not been selected as the environmentally superior alternative.

Both of the berth extension alternatives also reduce the severity of some significant impacts, including GHG emissions and aesthetics. However, there would be additional impacts to recreational boating due to a berth located farther from shore, and emissions of criteria pollutants would increase due to the use of larger vessels on the peak day.

Although the CBM and SPM alternatives have the benefits to spill risk of reducing the number of vessel visits, the larger vessels located close to shore would increase the size of a worst case spill, thereby making the spill risk similar to the proposed Project.

Given these issues, the impacts of the proposed Project, the CBM and SPM alternatives were determined to be similar and any of these, along with the proposed Project, could be the environmentally superior alternative.

KNOWN AREAS OF CONTROVERSY OR UNRESOLVED ISSUES

There are no known areas of controversy or unresolved issues regarding the proposed Project.